

ABSTRACT

The present invention is a method and apparatus to provide for the safe and effective removal and neutralization of ammonia from a stream of waste oil or other liquid. The apparatus consists of a receiving tank, a treatment tank, circulation piping, associated controls, pumping and monitoring mechanisms. The primary utility for the invention is with commercial and industrial refrigeration units. The neutralizing solution in the treatment tank is circulated through the piping which includes a venturi that is used to induce a negative gage pressure in the receiving tank by creating a suction that draws gases from the receiving tank. The negative pressure allows the receiving tank to pull the mixture of waste oil and entrained ammonia from the drain port of the refrigeration system even when the system is below atmospheric pressure. The venturi also removes ammonia gas from the receiving tank. The system provides for the introduction of a neutralizing agent such as carbon dioxide to be mixed with liberated ammonia as it is drawn into the circulation piping and returned to the treatment tank. Other paths in the circulation piping pass the neutralizing solution through a heat exchanger in the receiving tank or just return it to the treatment tank for mixing. Heat transfer cools the treatment tank and heats the receiving tank which facilitates evaporation of liquid ammonia.